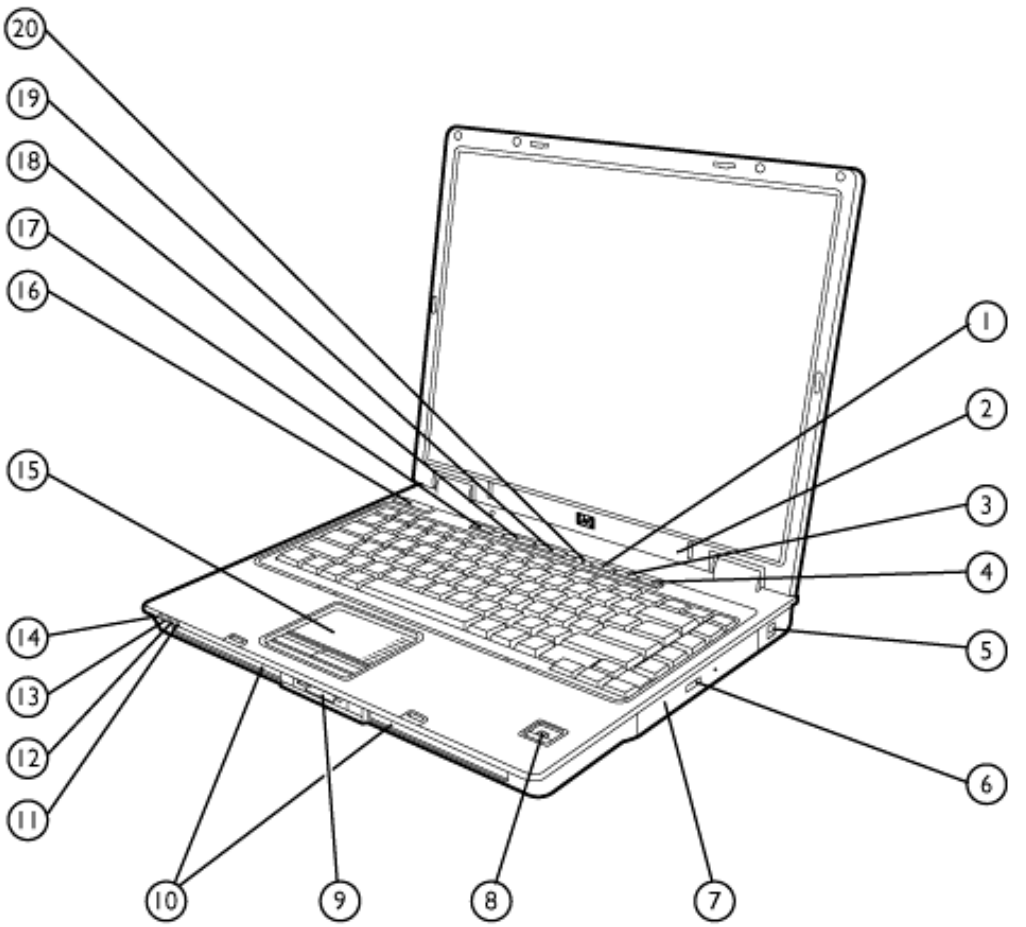
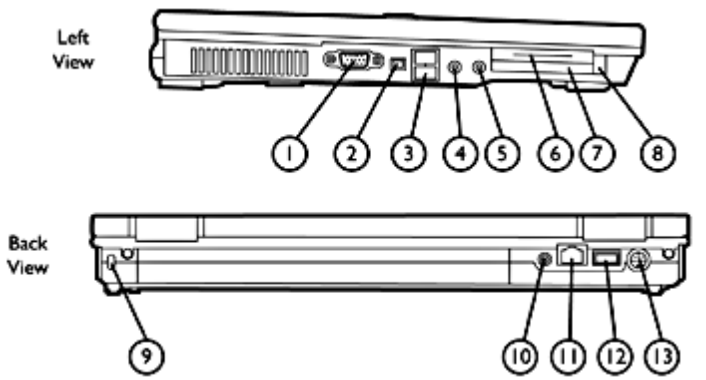


1. Volume Mute Button with LED
2. Internal Microphone
3. Volume Down Button
4. Volume Up Button
5. RJ-11 Port (Modem)
6. Optical Drive Button
7. Optical Drive
8. HP Biometric Fingerprint Sensor
9. 6-in-1 Media Reader with LED
10. Stereo Speakers
11. Hard Drive Activity LED
12. Battery Charging LED
13. Power/Standby LED
14. Wireless On/Off LED
15. Touchpad with Scroll Zone
16. Power/Standby Button with LED
17. HP Info Center Button
18. Wireless On/Off Button with LED
19. Presentation Mode Button
20. Caps Lock LED and Num Lock LED

Overview



1. VGA/External Monitor Port
2. IEEE 1394 Port
3. 2 USB 2.0 Ports
4. Microphone Jack
5. Headphone Jack
6. ExpressCard/54 Slot
7. PC Card Slot or Integrated Smart Card Reader
8. PC Card Eject Button
9. Kensington Lock Slot
10. DC Power Connector
11. RJ-45 Port (NIC) with 2 LEDs
12. USB 2.0 Port
13. S-Video TV Out

At A Glance

- Microsoft Windows XP Professional,
  Microsoft Windows XP Home Edition
  FreeDOS
- AMD Turion™ 64 Mobile Technology or Mobile AMD Sempron™ processor
- Sleek industrial design starting at 2.72 kg / 5.99 lb and 31.0 mm / 1.22-inch thin at front
- ATI RADEON XPRESS 200M Chipset
- 256-MB DDR SDRAM, upgradeable to 2048-MB maximum
- Up to 80-GB 5400 rpm hard drive
- Choice of optical drive: CD-ROM, DVD-ROM, DVD/CD-RW Combo or DVD+/-RW with Double Layer Technology and optional LightScribe
- Integrated ATI MOBILITY RADEON X300 with up to 128-MB allocated system memory
- Optional Integrated 802.11a/b/g or 802.11b/g wireless LAN module
- Optional integrated Bluetooth®
- 6-in-1 Media Reader
- NetXtreme Gigabit Ethernet Controller
- Touchpad with scroll zone
- Protected by one-year standard parts and labor pick-up-and-return or bring-in warranty. Pick-up and return warranty available in selected countries.

Overview

What's Special

- Security features:
  - HP ProtectTools
  - Integrated HP Biometric Fingerprint Sensor
  - HP Drivelock
  - Smart Card Reader (optional)
  - Kensington lock slot
- Ease of use features
  - HP Mobile Print Driver for on-the-go printing
  - HP Wireless Assistant
  - HP Info Center
  - HP Fast Charge technology
- Integrated reliability features:
  - HP Panel Protection System
  - Scratch-resistant keyboard using In-mold Lamination
  - HP spill-resistant keyboard with Mylar film
- Support for new HP docking solutions and HP Travel Battery.

Standard Features

Processors*	AMD Turion 64 Mobile Technology ML-40 (2.2-GHz, 1-MB L2 cache) AMD Turion 64 Mobile Technology ML-37 (2.0-GHz, 1-MB L2 cache) AMD Turion 64 Mobile Technology ML-34 (1.8-GHz, 1-MB L2 cache) AMD Turion 64 Mobile Technology ML-32 (1.8-GHz, 512-KB L2 cache) AMD Turion 64 Mobile Technology ML-30 (1.6-GHz, 1-MB L2 cache) AMD Turion 64 Mobile Technology ML-28 (1.6-GHz, 512-KB L2 cache) Mobile AMD Sempron processor 3100+ (1.8-GHz, 256-KB L2 cache) Mobile AMD Sempron processor 3000+ (1.8-GHz, 128-KB L2 cache) Mobile AMD Sempron processor 2800+ (1.6-GHz, 256-KB L2 cache) *NOTE: Speeds listed for AMD Turion™ 64 Mobile Technology processors are maximum performance levels on AC power. The processor speed is reduced up to approximately 80% on battery power to optimize battery life. Please go to www.hp.com for more details on battery life conservation.	
Operating System	Microsoft Windows XP Professional SP2 Microsoft Windows XP Home Edition SP2 (select countries only) FreeDOS NOTE: Microsoft Windows 2000 Professional is not available pre-installed, but drivers for it are downloadable from http://www.hp.com.	
Chipset	ATI RADEON XPRESS 200M Chipset	
Graphics	Integrated ATI MOBILITY RADEON X300 with up to 128-MB allocated system memory	
Display	**Internal**	15.0-inch TFT SXGA+ wide viewing angle (1400 x 1050 resolution and 16 M colors) 15.0-inch TFT XGA (1024 x 768 resolution and 16 M colors)
	External	Up to 32-bit per pixel color depth VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.
Memory	**Standard**	256-MB, 512-MB, or 1024-MB 333-MHz DDR SDRAM; two SODIMM slots
	Maximum	Upgradeable to 2048-MB maximum (1024-MB SODIMM in slots 1 and 2)
	NOTE: Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.	

Standard Features

Communications	NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)* 56K modem** with digital line guard * The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required. ** Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.
Wireless Devices	Support for a broad range of secure, integrated wireless LAN options. Integrated Bluetooth is also an option (factory configurable only) and can be combined with any one of the supported wireless LAN options.
All integrated wireless LAN options	Wi-Fi certified Cisco Compatible Extensions support Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) support 802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, and LEAP Dual antennas integrated in the display enclosure
Broadcom 802.11b/g WLAN	Integrated support for 802.11 b and g Up to 54-mbps data rate Advanced Encryption Standard (AES) support
Broadcom 802.11a/b/g WLAN	Integrated support for 802.11a, b and g Up to 54-mbps data rate Advanced Encryption Standard (AES) support
Integrated Bluetooth	Bluetooth Specification v1.2 compliant Works with a wide range of Bluetooth devices
Keyboard	The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. US and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19-mm x 19-mm key pitch (center-to-center spacing), 2.5-mm stroke, comfort-dished keycaps, and bright key legends for improved visibility in low light conditions.
One-Touch Productivity Buttons	Provide one-touch access to the following features: HP Info Center, Wireless On/Off, Presentation Mode, Volume Up, Volume Down, and Volume Mute
Pointing Device	Touchpad with scroll zone

Standard Features

Expansion Card Slots	One Type I/II PC Card Slot	Supports 32-bit CardBus and 16-bit PC Cards	
	or		
	Optional Integrated Smart Card Reader	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support	
	One ExpressCard/54 slot	Supports 34mm and 54mm ExpressCards	
Media Slots	6-in-1 Media Reader	Supports SD (Secure Digital), MMC (MultiMediaCard), Memory Stick, Memory Stick Pro, Smart Media, xD-Picture card CAUTION: This notebook PC does not support Memory Stick Duo Cards or Memory Stick Duo Adapters. Inserting one of these cards or adapters into your notebook can damage the memory card or adapter and/or the notebook PC.	
Storage	Hard Drives	40-, 60-, 80-GB 4200 rpm SMART 40-, 60-, 80-GB 5400 rpm SMART	
	NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles.		
	Optical Drives	Integrated (12.7-mm)	CD-ROM DVD-ROM DVD/CD-RW Combo DVD+/-RW with Double Layer Technology LightScribe DVD+/-RW with Double Layer Technology
		Optional HP External MultiBay II (9.5-mm) or HP Advanced Docking Station	DVD-ROM MultiBay II Drive DVD/CD-RW Combo MultiBay II Drive DVD+/-RW MultiBay II Drive
	Second Hard Drive	Optional HP External MultiBay II (9.5-mm) or HP Advanced Docking Station	80-GB 5400 rpm MultiBay II Hard Drive
Interfaces	PC Card Slot	One – Type I/II	
	or		
	Optional Integrated Smart Card Reader		
	ExpressCard/54 slot	One	
	External Monitor	One – VGA	
	IEEE 1394 Port	One	
	External Microphone	One	
	Headphone/Line out	One	
	Power Connector	One	
	RJ-11 (Modem)	One	
	RJ-45 (NIC)	One	
	S-Video TV Out	One (Support for NTSC/PAL)	
	USB 2.0	Three	
	Travel Battery Connector	One	
	LED Status Indicators	Twelve	

Standard Features

Audio		Conexant AC '97 CODEC Integrated 16-bit Sound Blaster Pro compatible audio Integrated microphone Integrated stereo speakers External volume up, volume down, and mute buttons Stereo headphone/line out Stereo microphone in
Software	**Preloaded Software for Microsoft Windows XP**	Adobe Acrobat Reader HP Local Recovery provided by Altiris* HP One-Touch Button Software HP Mobile Print Driver Synaptics Touchpad Driver HP Help and Support HP ProtectTools Security Manager: BIOS Configuration for HP ProtectTools Credential Manager for HP ProtectTools HP Wireless Assistant Sonic RecordNow! (for optional DVD+/-RW and DVD/CDRW drives)* Symantec Norton Antivirus with complimentary 60-day live update Intervideo WinDVD - DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)*
	Software on CD	Intervideo WinDVD Creator – DVD Authoring (for optional DVD+/-RW drives)
	Additional software available from the Web	HP Client Manager Software HP ProtectTools Security Manager: Smart Card Security for HP ProtectTools
	* Software is loaded on the hard drive and must be installed by running the Software Setup utility.	
System Recovery for Microsoft Windows XP systems only		Each unit is shipped with a recovery kit containing Operating System Recovery and Driver/Application Recovery discs. These discs allow users to either recover or repair the notebook operating system and select drivers without losing personal data. The Operating System disc also provides the option of reinstalling the operating system software provided with the notebook.
SMBIOS Version 2.3.4		System Management BIOS, previously known as DMI BIOS, is used to store system management information.
Client Management Software		HP Client Manager Software (CMS) provides asset tracking, alerting, diagnostics, and SoftPaq distribution for HP business desktops, notebooks, and workstations. HP CMS is the foundation for HP Client Management Solutions. For more information and to download HP Client Manager Software, please refer to the HP website at http://www.hp.com/go/easydeploy.

Standard Features

HP Local Recovery Provided by Altiris	Provides data and system file protection for HP business PCs to enable fast recovery of information that is accidentally deleted or if the system becomes corrupted. Designed for disconnected or seldom-connected users, Local Recovery protects your HP computer's data and system state by taking scheduled snapshots, which are then stored in a protected area on the local hard disk. System backup and disaster recovery is now simple and fast for all users, regardless of connectivity. For more information and to download, please refer to the HP website at http://www.hp.com/go/easydeploy.
HP ProtectTools Security Manager	HP ProtectTools Security Manager is the security platform for business notebooks and desktops. The HP ProtectTools Security Manager is an extensible client security console that delivers enhanced security capabilities through add-on software modules. Modules currently available are: - Smart Card Security for HP ProtectTools - BIOS Configuration for HP ProtectTools - Credential Manager for HP ProtectTools

Security	**Standard Features**	Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password Integrated HP Biometric Fingerprint Sensor HP Drivelock Enabled for PC Smart Card options Kensington Lock Slot	
	Optional Features	Smart Card Reader (replaces Type I/II PC Card slot)	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support
	For more information on HP security solutions refer to http://www.hp.com/go/security.		

Power Supply	External 65-watt slim AC adapter 1.8-meter (6-foot) power cord included. Total length including External AC adapter is 3.66 meter (12 feet). HP Fast Charge technology

Battery	**Primary Battery**	6-cell high capacity Lithium-Ion (52Wh)
	Optional Travel Battery	8-cell high capacity Lithium-Ion (52Wh)

Battery Life	Primary Battery	Up to 3 hours 45 minutes
	Primary Battery and optional HP Travel Battery	Up to 7 hours 30 minutes
	NOTE: Battery life will vary depending on the product configuration, product model, applications loaded on the product, power management settings of the product, and the product features used by the customer. As with all batteries, the maximum capacity of this battery will decrease with time and usage.	
System Standby Time	Up to 1 week	

Standard Features

Power Conservation	Hibernation Standby ACPI compliance
Docking	HP Docking Station HP Advanced Docking Station HP Adjustable Notebook Stand HP's shared docking solutions provide simple and convenient port replication and cable management. Features include Gigabit NIC pass through, modem pass through, legacy parallel and serial ports, S-video TV out, USB 2.0 ports, integrated security mechanism*, integrated MultiBay II and ExpressCard** slots. These docking solutions are compatible across multiple Business Notebook platforms enabling a lower total cost of ownership. * HP/Kensington Cable Lock required (purchased separately) ** HP Advanced Docking Station only
Service and Support	HP Services includes a one-year standard parts and labor, pick-up-and-return or bring-in warranty. Pick-up and return warranty available in selected countries. On-site service and warranty upgrades are also available. NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp.

Options

Memory	256-MB 333-MHz DDR SDRAM	DC389B
	512-MB 333-MHz DDR SDRAM	PA525A
	1024-MB 333-MHz DDR SDRAM	DC890B
MultiBay II Storage (9.5 mm)	8X DVD-ROM MultiBay II Drive	PA849A
	24X Combo DVD/CD-RW MultiBay II Drive	PA850A
	2X DVD+/-RW Dual Format MultiBay II Drive	PA851A
	80-GB 5400 rpm MultiBay II Hard Drive	PH357A
Storage	USB Diskette Drive	DC361B
	HP USB Digital Drive + 128-MB Secure Digital Card	DL702A
	HP 40-GB Mobile USB Hard Drive	DQ549A
Expansion Solutions	HP Docking Station	PA286A#xxx
	HP Advanced Docking Station	PA287A#xxx
	HP External USB MultiBay II	PA509A#xxx
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP 4-port USB 2.0 Hub	DG954A
Power	65W AC Adapter	DC359A#xxx
	90W AC Adapter	DC895B#xxx
	90W Air/Auto/AC Combo Adapter	DV574A#xxx
	Primary 6-cell Battery Pack	PB994A
	HP Travel Battery	PB993A
Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon	DC915A
	HP Executive Leather case	PA847A
	HP Sport Backpack	DG102A
Security	PC Card Smart Card Reader	DC350B
	HP/Kensington Cable Lock	PC766A
Input/Output Devices	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A

Memory

Up to 2048 MB of 333-MHz DDR SDRAM
Two DIMM slots
DIMM sizes supported: 256 MB, 512 MB, or 1024 MB

Standard Memory

- 256 MB (256 MB x 1)
- 512 MB (512 MB x 1 or 256 MB x 2)
- 1024 MB (1024 MB x 1 or 512 MB x 2)

Optional Memory Upgrades

Support for up to 2048 MB of memory is available (with the installation of optional DDR SDRAM memory kits). Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures.

Up to	Slot 1	Slot 2
768 MB	512 MB	256 MB
1024 MB	1024 MB	Empty
1024 MB	512 MB	512 MB
1280 MB	1024 MB	256 MB
1536 MB	1024 MB	512 MB
2048 MB	1024 MB	1024 MB

NOTE: This chart does not represent all possible memory configurations. Due to the non-industry standard nature of some third-party memory modules, we strongly recommend using only HP branded memory modules to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.

Memory Upgrades

1024-MB 333-MHz DDR SDRAM	DC890B
512-MB 333-MHz DDR SDRAM	DC390B
256-MB 333-MHz DDR SDRAM	DC389B

Removable Media Drive Support

	Quantity Supported	Drive Bay
LightScribe DVD+/-RW Drive with Double Layer Technology	One	Fixed optical drive bay
DVD+/-RW Drive with Double Layer Technology	One	Fixed optical drive bay
DVD/CD-RW Combo Drive	One	Fixed optical drive bay
DVD-ROM Drive	One	Fixed optical drive bay
CD-ROM Drive	One	Fixed optical drive bay
DVD+/-RW MultiBay II Drive	One	Optional HP External MultiBay II or HP Advanced Docking Station
DVD/CD-RW Combo MultiBay II Drive	One	Optional HP External MultiBay II or HP Advanced Docking Station
DVD-ROM MultiBay II Drive	One	Optional HP External MultiBay II or HP Advanced Docking Station

Hard Drive Support

	Quantity Supported	Drive Bay
80-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
60-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
40-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
80-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay
60-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay
40-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay

System Unit	**Dimensions** (HxWxD)	31 (at front) x 328 x 267 mm (1.22 (at front) x 12.9 x 10.5 in)	
	Weight	2.72 kg (5.99 lb)	
	NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, 30-GB hard drive, 256-MB memory, and CD-ROM drive. Weight varies by configuration and components.		
	Stand-Alone Power Requirements	Nominal Operating Voltage	18.5 V
		Average Operating Power	21 W
		Max Operating Power	< 65W
	Temperature	Operating	0° to 35° C (not writing optical)
			5° to 35° C (writing optical)
		Non-operating	-20° to 60°C
	Relative Humidity	Operating	10% to 90%, non-condensing
		Non-operating	5% to 95%, 38.7° C maximum wet bulb temperature
	Shock	Operating	125 G, 2 ms, half-sine
		Non-operating	200 G, 2 ms, half-sine
	Random Vibration	Operating	0.75 grms
		Non-operating	1.50 grms
	Altitude (unpressurized)	Operating	-15.24 to 3,048 m
		Non-operating	-15.24 to 12,192 m
	Industry Standard Certifications	Blue Angel	No
		UL	Yes
		Energy Star	Yes
		Canadian Safety	Yes
		CSA (Canada)	Yes
		ICES	Yes
		TUV GS	No
		Nordic Safety	No
		Mexican Safety	Yes
		Poland Compliance	Yes
		Australia / NZ Compliance	Yes
		CCC	Yes
		Japan Compliance	Yes
		MIC	Yes
		BSMI	Yes
		CE Marking Compliance	Yes
		KONCAR	Yes
		GOST	Yes
		SASO	Yes
		SABS	Yes
		UKRSERTCOMPUTER	Yes

65W External AC Adapter	Weight	0.28 kg (0.62 lb) (adapter) 0.13 kg (0.29 lb) (power cord)	
	Dimensions	10.6 x 4.7 x 2.8 cm (4.17 x 1.85 x 1.1 in)	
	Input	Operating Input Voltage	100 to 240 VAC
		Operating Input Current	1.7A at 90 VAC 0.85A at 180 VAC
		Operating Frequency Range	47 to 63 Hz AC
		Efficiency	83% minimum at 115 VAC
	Output	Output Power	65 W
		DC Output Current	18.5 V
	Environmental	Operating Temperature	0° to 40° C
		Non-operating (storage) Temperature	-20° to 65° C
		Altitude	0 to 3,048 m
		Humidity	20% to 80%
		Storage Humidity	10% to 90%
	EMI and Safety Certifications	CE Mark: full compliance with LVD and EMC directives Worldwide safety standards: IEC950, EN60950, UL1950, Class2, SELV Agency approvals: C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE	
	MTBF	Over 200,000 hours at 25°C ambient condition	

52Wh Primary Lithium-Ion Battery Pack	Dimensions (H x W x L)	2.0 x 5.3 x 20.3 cm (0.8 x 2.1 x 8.0 in)	
	Weight	0.315 kg (0.681 lb)	
	Cells/Type	6-cell Lithium-Ion	
	Energy	Voltage	10.8 V
		Amp-hour Capacity	4.8Ah
		Watt-hour Capacity	52Wh
	Temperature	Operating (Charging)	0° to 45° C
		Operating (Discharging)	-10° to 60° C
		Non-operating	-20° to 60° C
	Battery Re-Charge Time	System in OFF Mode or Standby	2.5 hours
		System ON	3 to 5 hours (depending on system power consumption)
		HP Fast Charge Technology	Charges the battery up to 90% within 1.5 hours when system is OFF

Technical Specifications

Optional 52Wh Travel Battery	Dimensions (H x W x L)	2.5 x 10.0 x 22.0 cm (1.0 x 3.9 x 8.7 in)	
	Weight	0.455 kg (1.00 lb)	
	Cells/Type	8-cell Lithium-Ion	
	Energy	Voltage	14.4 V
		Amp-hour Capacity	3.6Ah
		Watt-hour Capacity	52Wh
	Temperature	Operating (Charging)	0° to 45° C
		Operating (Discharging)	-10° to 60° C
		Non-operating	-20° to 60° C
	Battery Re-Charge Time	System in OFF mode or Standby	3 hours
		System ON	3 to 5 hours (depending on system power consumption)
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery	

15.0-Inch Color TFT XGA Display	Active Area (W x H)	30.4 x 22.8 cm (12.0 x 9.0 in)	
	Diagonal Size	38.0 cm (15.0 in)	
	Surface Treatment	Anti-glare	
	Number of Colors	Up to 16 M	
	Contrast Ratio	250:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	150 nit (typical)	
	Pixel Resolution	Pitch	0.297 mm
		Format	1024 x 768
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	85	
	Character Display	80 x 25	
	Total Power Consumption	5.7 W	
	Viewing Angle	±45° Horizontal, +15°/-35° Vertical (typical)	

Technical Specifications

15.0-Inch Color TFT SXGA+ Wide Viewing Angle Display	Active Area (W x H)	30.4 x 22.8 cm (12.0 x 9.0 in)	
	Diagonal Size	38.0 cm (15.0 in)	
	Surface Treatment	Anti-glare	
	Number of Colors	Up to 16 M	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	180 nit (typical)	
	Pixel Resolution	Pitch	0.217 mm
		Format	1400 x 1050
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	116	
	Character Display	80 x 25	
	Total Power Consumption	5.8 W	
	Viewing Angle	±60° Horizontal, +40°/-45° Vertical (typical)	
HP Biometric Fingerprint Sensor	Mobile Voltage Operation	3.0V-3.6V Single Supply	
	Operating Temperature	0°C through +70°C	
	Current Consumption @ 3.3V	Less than 70 mA peak imaging and scrolling Less than 25mA hardware finger detection Advanced Power Management	
	High-Rate Image Capture	Up to 240 image frames /sec	
	ESD Resistance	IEC 61000-4-2 Level 4 (±15KV)	
	Detection Matrix	192 x 16 Pixels 9.7 mm x 0.81mm 500 ppi High-Resolution Images	
Hard Drives			

Technical Specifications

80-GB 5400 rpm	Drive Weight	99 g (0.22 lb)	
	Capacity	80 GB	
	Height	9.5 mm (0.37 in)	
	Width	70 mm (2.75 in)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	5° to 55° C	
	Features	ATA Security	
60-GB 5400 rpm	Drive Weight	99 g (0.22 lb)	
	Capacity	60 GB	
	Height	9.5 mm (0.37 in)	
	Width	70 mm (2.75 in)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	117,210,240	
	Operating Temperature	5° to 55° C	
	Features	ATA Security	
40-GB 5400 rpm	Drive Weight	99 g (0.22 lb)	
	Capacity	40 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	78,140,160	
	Operating Temperature	5° to 55° C	
	Features	ATA Security	

Technical Specifications

80-GB 4200 rpm	Drive Weight	99 g (0.22 lb)	
	Capacity	80 GB	
	Height	9.5 mm (0.37 in)	
	Width	70 mm (2.75 in)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	4200 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	5° to 55° C	
	Features	ATA Security	
60-GB 4200 rpm	Drive Weight	99 g (0.22 lb)	
	Capacity	60 GB	
	Height	9.5 mm (0.37 in)	
	Width	70 mm (2.75 in)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	4200 rpm	
	Logical Blocks	117,210,240	
	Operating Temperature	5° to 55° C	
	Features	ATA Security	
40-GB 4200 rpm	Drive Weight	99 g (0.22 lb)	
	Capacity	40 GB	
	Height	9.5 mm (0.37 in)	
	Width	70 mm (2.75 in)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	4200 rpm	
	Logical Blocks	78,140,160	
	Operating Temperature	5° to 55° C	
	Features	ATA Security	

Removable Storage Drives – Fixed Bay

CD-ROM Drive	Access Times	Random	<110 ms CD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW	
	Supported Media (write)	None	
	Max Media Capacity (read)	700 MB	
	Transport	Tray Loading	
DVD-ROM Drive	Access Times	Random	<100 ms CD
			<125 ms DVD
	Max Data Transfer Rate	24X-CD-ROM	3,600 KB/s
		8X-DVD	10,800 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	None	
	Max Media Capacity (read)	4.7 GB	
	Transport	Tray Loading	

DVD/CD-RW Combo Drive	Access Times	Random	<110 ms CD
			<130 ms DVD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3,600 KB/s
		24X CD-RW	3,600 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	CD-R, CD-RW	
	Max Media Capacity (read)	4.7 GB	
	Max Media Capacity (write)	700 MB	
	Transport	Tray loading	

DVD+/-RW Drive with Double Layer Technology and LightScribe DVD+/-RW Drive with Double Layer Technology	Access Times	Random	<175 ms CD
			<230 ms DVD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3,600 KB/s
		10X CD-RW	1,500 KB/s
		8X DVD+R	10,800 KB/s
		4X DVD+RW	5,400 KB/s
		8X DVD-R	10,800 KB/s
		4X DVD-RW	5,400 KB/s
		2.4X DVD+R(9)	2,700 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW	
	Max Media Capacity (read)	8.5 GB	
	Max Media Capacity (write)	4.7 GB	
	Transport	Tray Loading	

Technical Specifications

Audio

Hardware	Implementation	Conexant AC '97 CODEC
	Volume Controls	Up, down, and mute buttons
	Full Duplex	Yes
	Sound Blaster Pro compatible	Yes
	Microphone Jack	Stereo or mono
	Headphone/Line Out Jack	Stereo
Audio Output Quality	Frequency Response	20 Hz - 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	7 kHz - 48 kHz
	AD/DA Resolution	16 bit
Internal Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Integrated Broadcom NetXtreme Gigabit PCI Express Ethernet Controller (10/100/1000 NIC)	Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
	Power Management	ACPI 1.1a compliant -- multiple power modes Situation-sensitive features reduce power consumption NIC Battery Saving Mode (enabled by default)
	Performance Features	TCP/IP/UDP Checksum Offload (configurable) Microsoft Large Send Offload (configurable) TCP Segmentation Offload CPU Task Offload Adaptive Interrupts

	Manageability	Wake-on-LAN from all Power-Managed States (configurable; Magic Packet and Microsoft Wake-Up Frame) PXE 2.0 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Cable Analyzer
	NIC Device Driver Name	Broadcom NetXtreme Gigabit Ethernet
	Drivers Available	Microsoft Windows XP Microsoft Windows 2000
Agere Systems AC'97 Modem	Form Factor	MDC Daughtercard
	Power Management Support	APM Revision 1.2, ACPI
	Approvals/ Certifications	UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE Mark, Other Countries
	Data Mode Capabilities	56K modem (a-law, mu-law) V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) V.34 (file date: 10/96) Optional symbol rates: 2800, 3429 Asymmetric Symbol rates Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation V.32bis V.32 V.23 V.22bis V.22 V.21 Bell 212A Bell 103J
	Fax Mode Capabilities	TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2

	Command Set	V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251
Broadcom 802.11b/g WLAN	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at http://www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security[1]	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points.
	Output Power (for CKK)[2]	17.5 dBm +/- 1.5 dB
	Output Power (for OFDM; power varies by data rate)[2]	13.5 dBm +/- 1.5 dB
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode: 248 mW (nominal) Sleep mode: 20 mW (max)
	Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode
	Receiver Sensitivity[3]	54 Mbps: -72 dBm,1 Mbps: -94 dBm
	Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure
	Range	802.11 b – Typical (@1 Mbps): 365.76 m (1200 feet) – Outdoor Open Area; 91.44 m (300 feet)– Indoor, Office environment 802.11 g – Typical (@1 Mbps): 365.76 m (1200 feet)– Outdoor Open Area; 91.44 m (300 feet) – Indoor, Office environment

Form Factor	MiniPCI Type IIIB	
Weight	12 g (0.026 lb)	
Dimensions	4.9 x 44.6 x 59.8 mm (0.20 x 1.75 x 2.34 in)	
Operating Voltage	3.3v	
Temperature	Operating Non-operating	0° to 50° C -10° to 70° C
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	4,572 m 12,192 m
Configuration Utility[4]	Choice of Configuration Utility: • Microsoft Windows XP Wireless Network Connection Manager • Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)	

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

Broadcom 802.11a/b/g WLAN	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Exensions Program compliant (details at http://www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security[1]	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CKK)[2]	17.5 dBm +/- 1.5 dB

Output Power (for OFDM; 13.5 dBm +/- 1.5 dB power varies by data rate)[2]		
Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode: 248 mW (nominal) Sleep mode: 20 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity[3]	802.11a - 54 Mbps: -70 dBm; 802.11g - 54 Mbps: -72 dBm, 1 Mbps: -94 dBm	
Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure	
Range	802.11 a – Typical (@6 Mbps)	304.8 m (1000 feet) – Outdoor Open Area 91.44 m (300 feet) – Indoor, Office environment
	802.11 b – Typical (@1 Mbps)	365.78 m (1000 feet) – Outdoor Open Area 91.44 m (300 feet) – Indoor, Office environment
	802.11 g – Typical (@1 Mbps)	365.78 m (1000 feet) – Outdoor Open Area 91.44 m (300 feet) – Indoor, Office environment
Form Factor	MiniPCI Type IIIA	
Weight	16 g (0.035 lb)	
Dimensions	4.8 x 50.95 x 59.75 mm (0.19 x 2.00 x 2.35 in)	
Operating Voltage	3.3v	
Temperature	Operating Non-operating	0° to 50° C -10° to 70° C
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	4,572 m 12,192 m
Configuration Utility[4]	Choice of Configuration Utility: • Microsoft Windows XP Wireless Network Connection Manager • Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)	

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

Bluetooth by HP	**Name**	HP Integrated module with Bluetooth wireless technology
	Bluetooth Specification	1.2 Compliant
	Dimensions	26 x 14 x 5.7 mm (1.02 x 0.55 x 0.22 in)
	Frequency Band	2402 to 2480 MHz
	Number of available channels	79 (1 MHz) available channels

Data Rates and throughput	1 Mbps data rate; throughput up to 720 Kbps	
	Synchronous Connection Oriented links up to 3, 64 kbps, voice channels	
	Asynchronous Connection Less links 723.2 kbps/57.6 kbps asymmetric or 433.9 kbps symmetric	
Transmit Power	-6 dBm to 4 dBm (Bluetooth Class II)	
Receiver Sensitivity	Better than -80 dBM at 0.1 % raw bit error rate	
Power Consumption	Peak (Tx) 264 mW	
	Peak (Rx) 231 mW	
	Sleep <1 mW	
Antenna	Internally integrated within module	
Range	Up 33 ft (10 m)	
Electrical Interface	USB 1.1 compliant	
	Microsoft Windows Plug and Play compliant	
OS Support	Microsoft Windows XP Professional and Home	
	Microsoft Windows 2000	
Bluetooth Software Supported	Widcomm Bluetooth for Windows	
	Microsoft Windows XP Bluetooth Software	
Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves	
Security	Full support of Bluetooth Security Provisions	
Power Management	Microsoft Windows ACPI, and USB Bus Support	
	Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff	
Certifications	All necessary regulatory approvals for supported countries, including:	
	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
	ETS 300 328, ETS 300 826	
	Low Voltage Directive IEC950	
	UL, CSA, and CE Mark	
Temperature	Operating	-20° to 70° C
	Non-operating	-40° to 80° C
Humidity	Operating	10% to 90%
	Non-operating	5% to 95%
Altitude	Operating	4,572 m
	Non-operating	12,192 m
Bluetooth Profiles Supported	(with Bluetooth for Windows 4.0 software)	
	Serial Port Profile (SPP)*	
	Dial-Up Networking (DUN)*	
	Generic Object Exchange Profile (GOEP)	
	Object Push Profile (OPP)*	
	File Transfer Profile (FTP)	
	Synchronization Profile (SYNC)	
	Hard Copy Cable Replacement (HCRP)*	
	Personal Area Networking Profile (PAN)*	
	Human Interface Device Profile (HID)*	
	FAX Profile (FAX)	

Basic Imaging Profile (BIP)
Headset Profile (HSP)
Hands Free Profile (HFP)
Advanced Audio Distribution Profile (A2DP)

* indicates the profile is also supported by Microsoft Windows XP SP2

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